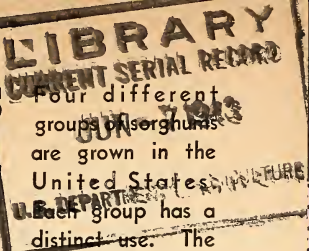


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1954 A.W. E.P.W.

10 STEPS IN GRADING GRAIN SORGHUMS



Four different groups of sorghums are grown in the United States. Each group has a distinct use. The grain sorghums, such as kafir, milo, and hegari, are grown for use as feed for livestock; the stalks are used for fodder and silage. The sorgos (sweet sorghums or cane) are used for forage and for sirup making. Broomcorn is grown for the brush used in making brooms. Sudan grass is grown for hay and pasture. This folder has to do only with the threshed grain of the first group—the grain sorghums. The grains of the other three groups are called nongrain sorghums.

Grain sorghums are sold by grade just as are wheat and corn. They grade No. 1, No. 2, No. 3, No. 4, or as Sample. The higher grades bring higher prices. No. 2 is the grade used most in the grain business.

Here we learn some of the things farmers can do to have better grain sorghums to sell. The 10 steps in grading grain sorghums are shown in the numbered illustrations on the inside pages.

SAMPLE

1. Start with a fair sample of the grain.
(Grain graders use a long metal probe or trier to draw a sample.)

ODOR

2. Smell the sample. If the grain has a bad odor, that is, if it smells musty or sour, or if it is heating, it is graded as Sample.

EXTENSION SERVICE

United States Department of Agriculture

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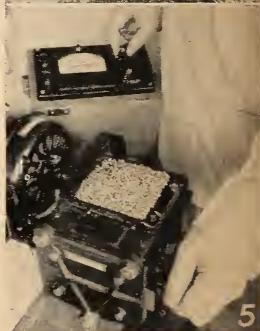
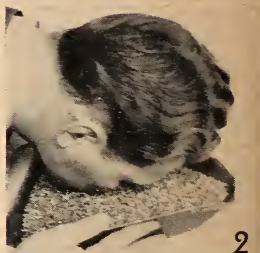
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NONGRAIN SORGHUMS

3. Look the sample over carefully, for it cannot be called grain sorghum if over one-fourth of it is seed of nongrain sorghums such as broom-corn, Sudan grass, Johnson grass, or cane. Most of the nongrain sorghums have tight hulls, shiny red, black, or yellow in color, and are smaller than grain sorghums. The seed of some are elongated in shape and are rarely white. Most cane seeds are bitter.

In illustration No. 3, the heads A and B are grain sorghums and the others are nongrain sorghums. C is broomcorn; D, Sudan grass; and E, cane.

The No. 2 grade cannot have more than 3 parts of nongrain sorghums to 100 parts of the sample (or 3 percent). These are parts by weight, not by count. No. 3 can have 5, and No. 4, 10 percent of nongrain sorghums.



TEST WEIGHT

4. The test weight of the sample is made next.

Grain inspectors make this test with a brass quart measure and beam and use the sample just as it is drawn and before any sieving is done. The No. 2 grade must test at least 53 pounds to the bushel.

MOISTURE

5. Grain sorghums must be dry to keep from spoiling in the bin. Grade No. 2 may have no more than 15 parts (or percent) of water to 100 parts of grain. Grain inspectors make tests for the water content with moisture machines.

DOCKAGE

6. The material removed by sieve from grain sorghums is "sand" dockage. The holes in the dockage sieve are only two and one-half sixty-fourths ($2\frac{1}{2}/64$) of an inch across. Sand and finely broken pieces of grain go through this sieve.

The farmer is not paid for the dockage when he sells his grain sorghums.

CRACKED KERNELS, FOREIGN MATERIAL, AND OTHER GRAINS

7. Inspectors test for the cracked kernels and other matter that will go through a sieve as well as for the foreign matter and other grains (except grain sorghums and nongrain sorghums) that stay on top of the sieve. The sieve has triangular or three-cornered holes and is called a "buckwheat" sieve from its use in cleaning wild buckwheat from wheat samples. The grain inspectors sieve the sample, take out the cracked kernels, and then hand-pick a small portion of the cleaned sample to remove the foreign material (such as weed seeds

and sticks) and the other grains (such as wheat and corn) that did not pass through the sieve.

An 8-percent total of cracked kernels (that go through the sieve), foreign material, and other grains is allowed in the No. 2 grade.

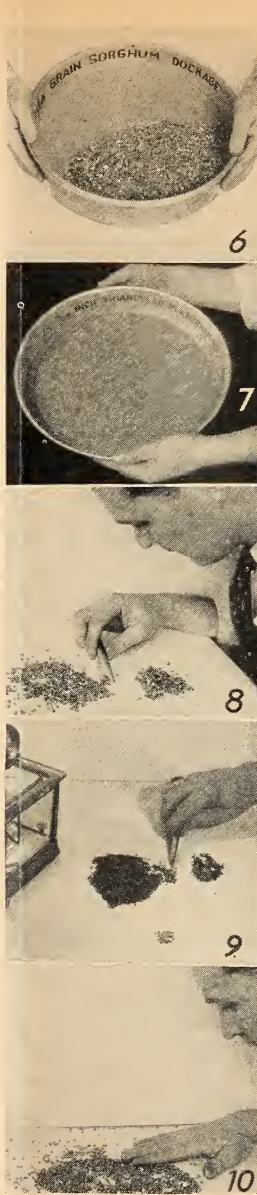
DAMAGED GRAINS

8. A part of the sieve-cleaned grain is looked over for damage. Damage may be found in the other grains as well as in the sorghums. One kind is caused by the heat from grain spoilage or fermentation and is known as heat damage. Another is caused by sprouting, frost, or molds. Five percent damage is allowed in the No. 2 grade, of which one-half of 1 percent may be heat damaged.

EFFECTS OF WEATHER

9. Given good weather at harvesttime, grain sorghums will have a good natural color and be graded as bright; for example, No. 2 bright yellow milo. During

rainy weather the grain-sorghum kernels may



become weathered and stained and then the word "discolored" is applied; for example, No. 1 yellow milo, discolored. Grain sorghums which are neither bright nor discolored, but which fall between these two, are graded without these terms; for example, No. 1 yellow milo.

If the grain sorghums are badly weathered, they are no longer called discolored, but are graded down to Sample; for example, Sample grade yellow milo with the comment, "Badly weathered."

SMUT AND INSECTS

10. Two other special terms used in grading grain are "smutty" and "weevily." Smutty grain sorghums contain masses of smut, and weevily grain sorghums contain insects that injure the grain when in storage.

Grain inspectors work under Federal rules when grading. After your sample of grain sorghums is tested by the inspector, it is graded. If it does not pass for No. 1, it may be No. 2, No. 3, No. 4, or Sample grade. The inspector must state his reason for giving the grade. If you are not satisfied with it, you may appeal to the district grain supervisor, United States Department of Agriculture.

Grain sorghums are divided into five color classes: White, yellow, red, brown, and mixed. The first three classes are further divided according to type. Most grain sorghums are either white kafir or yellow milo.

Grade requirements for grain sorghums

Grade No.	Minimum test weight per bushel	Moisture	Maximum limits of—			
			Damaged kernels (grain sorghums, nongrain sorghums, and other grains)		Non-grain sorghums	Total cracked kernels, foreign material, and other grains
			Total	Heat-damaged		
	Pounds	Percent	Percent	Percent	Percent	Percent
1	55	14	2	0.2	1	4
2	53	15	5	.5	3	8
3	51	16	10	1.0	5	12
4	49	18	15	3.0	10	15
Sample grade	Sample grade shall include grain sorghums of any class or subclass which do not come within the requirements of any of the grades from No. 1 to No. 4, inclusive; or which contain inseparable stones and/or clinders; or which are musty, or sour, or heating, or hot; or which are badly weathered; or which have any commercially objectionable foreign odor except of smut; or which are otherwise of distinctly low quality.					

HIGH-GRADE GRAIN SORGHUMS—

Have a good natural odor.

Are dry and clean.

Are not badly cracked or discolored by weather or infested with insects or smut.

Do not contain many damaged kernels or seeds of nongrain sorghums.

WHAT FARMERS CAN DO TO GROW GRAIN SORGHUMS THAT WILL GRADE HIGH:

1. GET GOOD SEED. Obtain a variety recommended for your locality by your own State experiment station.

2. SELECT SEED IN THE FIELD. Take only normal heads; avoid "highbirds," since these tall plants are usually too late in ripening.

3. TREAT SEED. Kernel smut may be prevented by treating seed with copper carbonate or Ceresan at the rate of 2 or 3 ounces to a bushel of seed.

4. HARVEST CAREFULLY. Grain will spoil if not thoroughly dry or if cracked when threshed. Dry the heads on long, narrow ricks. Adjust the cylinder speed and concaves to prevent grain from cracking, and use the combine only when the grain is thoroughly dry.

5. WATCH GRAIN IN STORAGE. While grain is in storage, be on the lookout for insects and signs of heating.

For more information about grain sorghums, call your county agricultural agent, or write to your State agricultural college.

Licensed grain inspectors and Federal grain supervisors of the War Food Administration, United States Department of Agriculture, are the officials located in the larger grain markets who can give you further advice on the inspection and grading of grain sorghums.